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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,152	08/10/2005	Masatomo Shibata	PHCF-03037US	5477

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Husch Blackwell Sanders, LLP
Welsh & Katz
120 S RIVERSIDE PLAZA
22ND FLOOR
CHICAGO, IL 60606

EXAMINER	
TRAN, TRANG Q	

ART UNIT	PAPER NUMBER
2811	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,152	SHIBATA ET AL.	
	Examiner	Art Unit	
	TRANG Q. TRAN	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) *12,14 and 16* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,13,15 and 17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12/27/04* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/27/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I (claims 1-11, 13, 15 and 17) in the reply filed on April 28, 2008 is acknowledged.

Claims 12, 14 and 16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on April 28, 2008.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-11, 13, 15 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Shibata et al. (US 2006/0046511)

The applied reference has common inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the

reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Re. claim 1, Figs. 2A-2D of Shibata discloses a porous substrate (2'+3'), comprising a plurality of porous layers (2'+3') thereon, wherein the average opening diameter of pores in a porous layer (3') of said plurality of porous layers positioned in an outermost surface is smaller than the average diameter of pores in a porous layer (2') of said plurality of porous layers positioned on a substrate (1) side relative to said porous layer positioned in said outermost surface (as seen in Fig. 2D).

Re. claim 2, Figs. 2A-2D of Shibata discloses a porous substrate (2'+3'), comprising a plurality of porous layers (2'+3') thereon, wherein the average opening diameter of pores in a porous layer (3') of said plurality of porous layers (2'+3') positioned in an outermost surface (as seen in Fig. 2D) is smaller than the average diameter of pores in a porous layer (2') of said plurality of porous layers (2'+3') positioned on a substrate (1) side relative to said porous layer (3') positioned in said outermost surface; and the volume porosity of said plurality of porous layers is 10%-90% (¶65).

Re. claim 3, Figs. 2A-2D of Shibata discloses a porous substrate (2'+3'), comprising two porous layers (2'+3') thereon, wherein the average opening diameter of pores in a first porous layer (3') of said two porous layers (2'+3') positioned in an

outermost surface (as seen in Fig. 2D) is smaller than the average diameter of pores in a second porous layer (2') positioned on a substrate (1) side relative to said first porous layer (3'); and more than 50% of said pores in said first porous layer (3') penetrate from the surface of said first porous layer (3') to the interface between said first and second porous layer (2'+3') as seen in Fig. 2D and ¶65.

Re. claim 4, Figs. 2A-2D of Shibata discloses a porous substrate (2'+3'), comprising two porous layers (2'+3') thereon, wherein the average opening diameter of pores in a first porous layer (3') of said two porous layers (2'+3') positioned in an outermost surface is smaller than the average diameter of pores in a second porous layer (2') positioned on a substrate (1) side relative to said first porous layer (3'); more than 50% of said pores in said first porous layer (3') penetrate from the surface of said first porous layer (3') to the interface between said first and second porous layer (as seen in fig. 2D); and the volume porosity of said first and second porous layer is 10%-90% (¶65).

Re. claim 5, Shibata discloses the porous substrate according to claim 3, wherein said first porous layer (3') comprises a metal material (¶116).

Re. claim 6, Shibata discloses the porous substrate according to claim 3, wherein said first porous layer (3') comprises a metal nitride (¶116).

Re. claim 7, Shibata discloses the porous substrate according to claim 3, wherein said second porous layer (2') comprises a semiconductor material (¶118).

Re. claim 8, Shibata discloses the porous substrate according to claim 3, wherein said second porous layer (2') comprises a group III nitride series compound semiconductor material (GaN, ¶118).

Re. claim 9, Shibata discloses the porous substrate according to claim 3, wherein said first porous layer (3') comprises TiN (¶116), and said second porous layer (2') comprises GaN (¶118).

Re. claim 10, Shibata discloses the porous substrate according to claim 3, wherein said average opening diameter of said porosity in said first porous layer (3') is not more than 1 μm (pg. 14, claim 12).

Re. claim 11, Shibata discloses the porous substrate according to claim 3, wherein the film thickness of said first porous layer (3') is not more than 1 μm (¶114).

Re. claim 13, Shibata discloses a GaN series semiconductor layered substrate, comprising a GaN series semiconductor layer (4) grown on a porous substrate (2'+3') defined claim 1.

Re. claim 15, Shibata discloses a GaN series semiconductor layered substrate, comprising a GaN series semiconductor layer (4) grown on a porous substrate (2'+3') defined in claim 2.

Re. claim 17, Shibata discloses a GaN series semiconductor layered substrate, comprising a GaN series semiconductor layer (4) grown on a porous substrate (2'+3') defined in claim 4.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRANG Q. TRAN whose telephone number is (571)270-3259. The examiner can normally be reached on Mon - Thu (9am-5pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne A. Gurley can be reached on 571-272-1670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/T. Q. T./

Examiner, Art Unit 2811

/Cuong Q Nguyen/

Primary Examiner, Art Unit 2811